

CLAIMS

We claim:

1. A method comprising comparing a FTMS peak profile of a first biological sample derived from cells that have not been exposed to a candidate bioactive agent to an FTMS peak profile of a second
5 biological sample derived from a cell that has been exposed to said candidate bioactive agent.

2. A method comprising:

- a) contacting a first population of cells with a first candidate bioactive agent;
- b) subjecting said first population of cells to FTMS analysis to obtain a first peak
10 profile; and
- c) comparing said first profile to a reference profile from said first population of cells in the absence of said first agent.

3. A method comprising subjecting a first population of cells to FTMS analysis to obtain a first peak profile comprising a plurality of peaks, wherein at least two peaks correspond to different types of biomolecules.

4. A method according to claim 3 wherein said different types of biomolecules comprise proteins and
15 metabolites.

5. A method comprising:

- a) providing a population of cells comprising at least a first and a second subpopulation of cells;
- 20 b) contacting said first subpopulation of cells with a first candidate bioactive agent;
- c) contacting said second subpopulation of cells with a second candidate bioactive agent;
- d) subjecting said first and said second subpopulation of cells to FTMS analysis to obtain a first and a second peak profile, respectively;
- 25 e) comparing said first and said second peak profiles to a reference profile from said population of cells in the absence of said agents.

6. A method according to claim 5 wherein a library of subpopulations are contacted with a library of candidate bioactive agents.

7. A method according to claim 5 or 6 wherein said candidate bioactive agents are small molecule drug candidates.

8. A method according to claim 5 or 6 wherein said candidate bioactive agents are peptides.

9. A method according to claim 5 wherein said subpopulations are prepared prior to FTMS analysis.

5 10. A method according to claim 9 wherein said preparation is a separation step.

11. A method comprising:

a) contacting a first population of cells with a drug;

b) subjecting said population of cells to FTMS analysis to obtain a peak profile;

and

10 c) comparing said profile to a reference profile from said population of cells in the absence of said drug.

12. A method comprising:

a) providing a population of cells comprising at least a first and a second subpopulation;

15 b) contacting said first subpopulation of cells with a drug at a first concentration;

c) contacting said second subpopulation of cells with a drug at a second concentration;

d) subjecting said first and said second subpopulations of cells to FTMS analysis to obtain a first and a second peak profile, respectively; and

20 e) comparing said first and said second peak profiles to identify at least one peak that differs in intensity, which peak does not correspond to said drug.

13. A method according to claim 12 further comprising comparing at least one of said first and second peak profiles to a reference profile from said population of cells in the absence of said drug.

14. A method comprising:

25 a) subjecting a first population of cells to FTMS analysis to obtain a first peak profile;

b) subjecting a second population of cells to FTMS analysis to obtain a second peak profile, wherein said first and second populations are of different cell types; and

c) comparing said first and said second peak profiles to identify at least one peak that differs in intensity.

15. A method according to claim 14 further comprising identifying the molecule giving rise to said differing intensity peak.

5 16. A method according to claim 14 further comprising subjecting at least five different cell types to FTMS analysis.

17. A method according to claim 14 wherein at least one of said populations is exposed to a first candidate bioactive agent prior to said FTMS analysis.

18. A method according to claim 14 wherein said populations are from different individuals.

10 19. A method according to claim 14 wherein at least one of said populations is from an animal with a disease state.

20. A method according to claim 14 wherein said peak profiles are stored in a computer memory database.

21. A method comprising:

- 15 a) subjecting a population of cancerous cells to FTMS analysis to obtain a first peak profile;
- b) comparing said first peak profile to a reference profile from a population of non-cancerous cells to identify at least one peak that differs in intensity.

22. A method comprising:

- 20 a) subjecting a population of cells from an organism with a disease state to FTMS analysis to obtain a first peak profile;
- b) comparing said first peak profile to a reference profile from a population of cells from an organism without said disease state to identify at least one peak that differs in intensity;
- 25 c) identifying said peak.